1. Factor the polynomial below completely. Then, choose the intervals the zeros of the polynomial belong to, where $z_1 \leq z_2 \leq z_3$. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 8x^3 - 34x^2 - 39x + 45$$

A. $z_1 \in [-5.9, -3.5]$, $z_2 \in [-1.82, -1.31]$, and $z_3 \in [0.6, 0.73]$

B. $z_1 \in [-1, -0.1]$, $z_2 \in [0.87, 1.6]$, and $z_3 \in [4.82, 5.23]$

C. $z_1 \in [-2.7, -0.7]$, $z_2 \in [-0.01, 1.07]$, and $z_3 \in [4.82, 5.23]$

D. $z_1 \in [-5.9, -3.5]$, $z_2 \in [-1.01, -0.49]$, and $z_3 \in [1.5, 1.58]$

E. $z_1 \in [-5.9, -3.5]$, $z_2 \in [-3.25, -2.68]$, and $z_3 \in [0.18, 0.44]$

---

2. What are the *possible Integer* roots of the polynomial below?

$$f(x) = 4x^3 + 4x^2 + 5x + 5$$

A. $\pm 1, \pm 2, \pm 4$

B. All combinations of: $\dfrac{\pm 1, \pm 5}{\pm 1, \pm 2, \pm 4}$

C. All combinations of: $\dfrac{\pm 1, \pm 2, \pm 4}{\pm 1, \pm 5}$

D. $\pm 1, \pm 5$

E. There is no formula or theorem that tells us all possible Integer roots.

---

3. Factor the polynomial below completely. Then, choose the intervals the zeros of the polynomial belong to, where $z_1 \leq z_2 \leq z_3$. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 9x^3 + 27x^2 - 82x + 40$$

A. $z_1 \in [-5.3, -4.79]$, $z_2 \in [0.74, 0.79]$, and $z_3 \in [1.47, 1.57]$

B. $z_1 \in [-1.7, -1.42]$, $z_2 \in [-0.8, -0.68]$, and $z_3 \in [4.86, 5.23]$

C. $z_1 \in [-1.36, -0.85]$, $z_2 \in [-0.67, -0.56]$, and $z_3 \in [4.86, 5.23]$

D. $z_1 \in [-4.43, -3.76]$, $z_2 \in [-0.38, -0.13]$, and $z_3 \in [4.86, 5.23]$

E. $z_1 \in [-5.3, -4.79]$, $z_2 \in [0.65, 0.68]$, and $z_3 \in [1.07, 1.37]$

---

4. Perform the division below. Then, find the intervals that correspond to the quotient in the form $ax^2 + bx + c$ and remainder r.

$$\frac{25x^3 - 105x^2 + 83}{x - 4}$$

A. $a \in [95, 103], b \in [-507, -499], c \in [2020, 2024]$, and $r \in [-8000, -7994]$.

B. $a \in [22, 30], b \in [-9, -4], c \in [-20, -19]$, and $r \in [2, 8]$.

C. $a \in [22, 30], b \in [-30, -28], c \in [-96, -87]$, and $r \in [-189, -184]$.

D. $a \in [22, 30], b \in [-207, -201], c \in [817, 822]$, and $r \in [-3198, -3194]$.

E. $a \in [95, 103], b \in [292, 297], c \in [1179, 1182]$, and $r \in [4802, 4808]$.

---

5. Perform the division below. Then, find the intervals that correspond to the quotient in the form $ax^2 + bx + c$ and remainder r.

$$\frac{10x^3 + 41x^2 + 51x + 22}{x + 2}$$

A. $a \in [-22, -19]$, $b \in [79, 86]$, $c \in [-112, -106]$, and $r \in [241, 249]$.

B. $a \in [9, 13]$, $b \in [17, 23]$, $c \in [6, 10]$, and $r \in [-1, 9]$.

C. $a \in [9, 13]$, $b \in [9, 15]$, $c \in [16, 27]$, and $r \in [-36, -29]$.

D. $a \in [9, 13]$, $b \in [57, 66]$, $c \in [173, 175]$, and $r \in [362, 369]$.

E. $a \in [-22, -19]$, $b \in [0, 7]$, $c \in [52, 56]$, and $r \in [126, 134]$.

---

6. Perform the division below. Then, find the intervals that correspond to the quotient in the form $ax^2 + bx + c$ and remainder r.

$$\frac{8x^3 - 24x + 14}{x + 2}$$

A. $a \in [6, 14], b \in [-28, -20], c \in [45, 53],$ and $r \in [-132, -124]$.

B. $a \in [-24, -15], b \in [28, 35], c \in [-88, -87],$ and $r \in [182, 199]$.

C. $a \in [6, 14], b \in [-19, -14], c \in [1, 14],$ and $r \in [-4, 0]$.

D. $a \in [6, 14], b \in [16, 23], c \in [1, 14],$ and $r \in [30, 36]$.

E. $a \in [-24, -15], b \in [-36, -28], c \in [-88, -87],$ and $r \in [-166, -160]$.

---

7. Factor the polynomial below completely, knowing that $x - 5$ is a factor. Then, choose the intervals the zeros of the polynomial belong to, where $z_1 \leq z_2 \leq z_3 \leq z_4$. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 12x^4 - 47x^3 - 102x^2 + 155x + 150$$

A. $z_1 \in [-2, -1]$, $z_2 \in [-1.51, -1.18], z_3 \in [0.49, 0.63],$ and $z_4 \in [4.6, 5.8]$

B. $z_1 \in [-2, -1]$, $z_2 \in [-0.78, -0.61], z_3 \in [1.5, 1.69],$ and $z_4 \in [4.6, 5.8]$

C. $z_1 \in [-7, -3]$, $z_2 \in [-0.65, -0.53], z_3 \in [1.28, 1.5],$ and $z_4 \in [1, 2.4]$

D. $z_1 \in [-7, -3]$, $z_2 \in [-0.47, -0.33], z_3 \in [1.9, 2.12],$ and $z_4 \in [2.9, 3.6]$

E. $z_1 \in [-7, -3]$, $z_2 \in [-1.68, -1.5], z_3 \in [0.69, 0.99],$ and $z_4 \in [1, 2.4]$

---

8. Factor the polynomial below completely, knowing that $x + 4$ is a factor. Then, choose the intervals the zeros of the polynomial belong to, where $z_1 \leq z_2 \leq z_3 \leq z_4$. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 10x^4 + x^3 - 133x^2 + 122x + 120$$

A. $z_1 \in [-3.44, -2.2]$, $z_2 \in [-2.14, -1.9], z_3 \in [0.55, 0.83],$ and $z_4 \in [3.48, 4.06]$

B. $z_1 \in [-2.11, -1.78]$, $z_2 \in [-0.44, -0.24], z_3 \in [1.31, 1.72],$ and $z_4 \in [3.48, 4.06]$

C. $z_1 \in [-2.11, -1.78]$, $z_2 \in [-0.56, -0.46], z_3 \in [2.94, 3.09],$ and $z_4 \in [3.48, 4.06]$

D. $z_1 \in [-4.38, -3.92]$, $z_2 \in [-0.61, -0.56]$, $z_3 \in [1.78, 2.09]$, and $z_4 \in [2.27, 3.18]$

E. $z_1 \in [-4.38, -3.92]$, $z_2 \in [-1.79, -1.59]$, $z_3 \in [0.23, 0.47]$, and $z_4 \in [1.69, 2.08]$

---

9. What are the *possible Integer* roots of the polynomial below?

$$f(x) = 5x^3 + 4x^2 + 4x + 2$$

A. All combinations of: $\dfrac{\pm 1, \pm 2}{\pm 1, \pm 5}$

B. $\pm 1, \pm 2$

C. All combinations of: $\dfrac{\pm 1, \pm 5}{\pm 1, \pm 2}$

D. $\pm 1, \pm 5$

E. There is no formula or theorem that tells us all possible Integer roots.

---

10. Perform the division below. Then, find the intervals that correspond to the quotient in the form $ax^2 + bx + c$ and remainder r.

$$\frac{6x^3 + 5x^2 - 49x - 55}{x - 3}$$

A. $a \in [18, 20]$, $b \in [57, 63]$, $c \in [126, 132]$, and $r \in [328, 334]$.

B. $a \in [18, 20]$, $b \in [-51, -44]$, $c \in [95, 102]$, and $r \in [-349, -348]$.

C. $a \in [6, 14]$, $b \in [-13, -12]$, $c \in [-13, -8]$, and $r \in [-29, -20]$.

D. $a \in [6, 14]$, $b \in [13, 20]$, $c \in [-17, -14]$, and $r \in [-86, -83]$.

E. $a \in [6, 14]$, $b \in [21, 24]$, $c \in [20, 23]$, and $r \in [2, 10]$.

---

11. Factor the polynomial below completely. Then, choose the intervals the zeros of the polynomial belong to, where $z_1 \leq z_2 \leq z_3$. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 20x^3 - 81x^2 + 102x - 40$$

A. $z_1 \in [-4.5, -3.6]$, $z_2 \in [-3.3, -1.7]$, and $z_3 \in [-0.39, 0.33]$

B. $z_1 \in [0.4, 1.6]$, $z_2 \in [0.6, 2.1]$, and $z_3 \in [1.36, 2.65]$

C. $z_1 \in [0.4, 1.6]$, $z_2 \in [0.6, 2.1]$, and $z_3 \in [1.36, 2.65]$

D. $z_1 \in [-3.6, -1.7]$, $z_2 \in [-1.4, -0.8]$, and $z_3 \in [-0.98, -0.56]$

E. $z_1 \in [-3.6, -1.7]$, $z_2 \in [-1.4, -0.8]$, and $z_3 \in [-0.98, -0.56]$

---

12. What are the *possible Integer* roots of the polynomial below?

$$f(x) = 2x^4 + 4x^3 + 5x^2 + 4x + 5$$

A. $\pm 1, \pm 2$

B. $\pm 1, \pm 5$

C. All combinations of: $\dfrac{\pm 1, \pm 2}{\pm 1, \pm 5}$

D. All combinations of: $\dfrac{\pm 1, \pm 5}{\pm 1, \pm 2}$

E. There is no formula or theorem that tells us all possible Integer roots.

---

13. Factor the polynomial below completely. Then, choose the intervals the zeros of the polynomial belong to, where $z_1 \leq z_2 \leq z_3$. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 12x^3 + 41x^2 - 40x - 48$$

A. $z_1 \in [-0.64, 0.17]$, $z_2 \in [2.2, 3.67]$, and $z_3 \in [3.19, 4.17]$

B. $z_1 \in [-4.17, -3.99]$, $z_2 \in [-1.28, -0.53]$, and $z_3 \in [1.15, 1.56]$

C. $z_1 \in [-2.06, -1.17]$, $z_2 \in [0.41, 1.08]$, and $z_3 \in [3.19, 4.17]$

D. $z_1 \in [-1.09, -0.54]$, $z_2 \in [1.26, 1.72]$, and $z_3 \in [3.19, 4.17]$

E. $z_1 \in [-4.17, -3.99]$, $z_2 \in [-1.92, -0.98]$, and $z_3 \in [0.14, 0.89]$

---

14. Perform the division below. Then, find the intervals that correspond to the quotient in the form $ax^2 + bx + c$ and remainder r.

$$\frac{20x^3 + 65x^2 - 47}{x + 3}$$

A. $a \in [16, 24], b \in [-3, 8], c \in [-18, -13],$ and $r \in [-3, 5]$.

B. $a \in [16, 24], b \in [-22, -12], c \in [55, 64],$ and $r \in [-290, -285]$.

C. $a \in [-64, -53], b \in [-118, -114], c \in [-346, -342],$ and $r \in [-1084, -1080]$.

D. $a \in [-64, -53], b \in [244, 248], c \in [-736, -732],$ and $r \in [2158, 2159]$.

E. $a \in [16, 24], b \in [125, 129], c \in [374, 381],$ and $r \in [1073, 1088]$.

---

15. Perform the division below. Then, find the intervals that correspond to the quotient in the form $ax^2 + bx + c$ and remainder r.

$$\frac{8x^3 - 20x^2 - 56x + 37}{x - 4}$$

A. $a \in [31, 33], \ b \in [-150, -144], \ c \in [535, 540],$ and $r \in [-2111, -2106]$.

B. $a \in [4, 10], \ b \in [12, 13], \ c \in [-11, 1],$ and $r \in [4, 11]$.

C. $a \in [4, 10], \ b \in [-55, -50], \ c \in [148, 155],$ and $r \in [-573, -566]$.

D. $a \in [31, 33], \ b \in [107, 113], \ c \in [370, 377],$ and $r \in [1541, 1545]$.

E. $a \in [4, 10], \ b \in [1, 5], \ c \in [-48, -42],$ and $r \in [-96, -92]$.

---

16. Perform the division below. Then, find the intervals that correspond to the quotient in the form $ax^2 + bx + c$ and remainder r.

$$\frac{4x^3 - 75x + 123}{x + 5}$$

A. $a \in [-1, 8], b \in [-26, -21], c \in [69, 70],$ and $r \in [-294, -289]$.

B. $a \in [-24, -19], b \in [99, 102], c \in [-584, -574],$ and $r \in [2991, 2999]$.

C. $a \in [-24, -19], b \in [-102, -99], c \in [-584, -574],$ and $r \in [-2753, -2750]$.

D. $a \in [-1, 8], b \in [19, 21], c \in [19, 27],$ and $r \in [245, 253]$.

E. $a \in [-1, 8], b \in [-22, -14], c \in [19, 27],$ and $r \in [-5, -1]$.

---

17. Factor the polynomial below completely, knowing that $x - 4$ is a factor. Then, choose the intervals the zeros of the polynomial belong to, where $z_1 \leq z_2 \leq z_3 \leq z_4$. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 16x^4 - 16x^3 - 217x^2 + 25x + 300$$

A. $z_1 \in [-3.7, -2.8],\ z_2 \in [-1.39, -1.21], z_3 \in [1.02, 2.4],$ and $z_4 \in [3.6, 4.4]$

B. $z_1 \in [-3.7, -2.8],\ z_2 \in [-1, -0.8], z_3 \in [0.52, 0.96],$ and $z_4 \in [3.6, 4.4]$

C. $z_1 \in [-5.5, -3.7],\ z_2 \in [-0.63, -0.22], z_3 \in [2.81, 3.19],$ and $z_4 \in [4.2, 5.6]$

D. $z_1 \in [-5.5, -3.7],\ z_2 \in [-1, -0.8], z_3 \in [0.52, 0.96],$ and $z_4 \in [2.2, 3.4]$

E. $z_1 \in [-5.5, -3.7],\ z_2 \in [-1.39, -1.21], z_3 \in [1.02, 2.4],$ and $z_4 \in [2.2, 3.4]$

---

18. Factor the polynomial below completely, knowing that $x + 2$ is a factor. Then, choose the intervals the zeros of the polynomial belong to, where $z_1 \leq z_2 \leq z_3 \leq z_4$. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 9x^4 - 12x^3 - 92x^2 - 32x + 64$$

A. $z_1 \in [-2.7, -1.7],\ z_2 \in [-1.36, -1.3], z_3 \in [0.54, 0.71],$ and $z_4 \in [3.4, 4.8]$

B. $z_1 \in [-2.7, -1.7],\ z_2 \in [-0.78, -0.72], z_3 \in [1.49, 1.6],$ and $z_4 \in [3.4, 4.8]$

C. $z_1 \in [-4.7, -3.8],\ z_2 \in [-0.27, -0.17], z_3 \in [1.98, 2.01],$ and $z_4 \in [3.4, 4.8]$

D. $z_1 \in [-4.7, -3.8]$, $z_2 \in [-1.54, -1.42]$, $z_3 \in [0.7, 0.81]$, and $z_4 \in [0, 2.5]$

E. $z_1 \in [-4.7, -3.8]$, $z_2 \in [-0.74, -0.66]$, $z_3 \in [1.28, 1.44]$, and $z_4 \in [0, 2.5]$

---

19. What are the *possible Integer* roots of the polynomial below?

$$f(x) = 3x^4 + 2x^3 + 5x^2 + 7x + 7$$

A. $\pm 1, \pm 7$

B. All combinations of: $\dfrac{\pm 1, \pm 7}{\pm 1, \pm 3}$

C. $\pm 1, \pm 3$

D. All combinations of: $\dfrac{\pm 1, \pm 3}{\pm 1, \pm 7}$

E. There is no formula or theorem that tells us all possible Integer roots.

---

20. Perform the division below. Then, find the intervals that correspond to the quotient in the form $ax^2 + bx + c$ and remainder r.

$$\frac{6x^3 + 39x^2 + 78x + 49}{x + 3}$$

A. $a \in [-18, -13]$, $b \in [91, 98]$, $c \in [-202, -200.4]$, and $r \in [648, 653]$.

B. $a \in [-2, 8]$, $b \in [21, 27]$, $c \in [13.7, 15.7]$, and $r \in [2, 11]$.

C. $a \in [-2, 8]$, $b \in [15, 16]$, $c \in [17.7, 18.1]$, and $r \in [-24, -16]$.

D. $a \in [-2, 8]$, $b \in [57, 60]$, $c \in [248.6, 250.1]$, and $r \in [793, 800]$.

E. $a \in [-18, -13]$, $b \in [-16, -12]$, $c \in [32.1, 34.2]$, and $r \in [144, 149]$.

---

21. Factor the polynomial below completely. Then, choose the intervals the zeros of the polynomial belong to, where $z_1 \leq z_2 \leq z_3$. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 25x^3 + 95x^2 - 142x + 40$$

A. $z_1 \in [-0.9, -0.5]$, $z_2 \in [-0.76, -0.27]$, and $z_3 \in [4.8, 5.7]$

B. $z_1 \in [-5.3, -4.7]$, $z_2 \in [1.02, 1.34]$, and $z_3 \in [2.4, 2.9]$

C. $z_1 \in [-3.7, -1.8]$, $z_2 \in [-1.31, -1.16]$, and $z_3 \in [4.8, 5.7]$

D. $z_1 \in [-5.3, -4.7]$, $z_2 \in [0.06, 0.68]$, and $z_3 \in [0, 1.3]$

E. $z_1 \in [-4.5, -3.8]$, $z_2 \in [-0.24, 0.01]$, and $z_3 \in [4.8, 5.7]$

---

22. What are the *possible Integer* roots of the polynomial below?

$$f(x) = 3x^4 + 6x^3 + 4x^2 + 4x + 4$$

A. $\pm 1, \pm 3$

B. All combinations of: $\dfrac{\pm 1, \pm 3}{\pm 1, \pm 2, \pm 4}$

C. All combinations of: $\dfrac{\pm 1, \pm 2, \pm 4}{\pm 1, \pm 3}$

D. $\pm 1, \pm 2, \pm 4$

E. There is no formula or theorem that tells us all possible Integer roots.

---

23. Factor the polynomial below completely. Then, choose the intervals the zeros of the polynomial belong to, where $z_1 \leq z_2 \leq z_3$. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 6x^3 - 7x^2 - 43x + 30$$

A. $z_1 \in [-4.9, -2.9]$, $z_2 \in [-0.92, -0.59]$, and $z_3 \in [1.97, 2.57]$

B. $z_1 \in [-1.6, 0.4]$, $z_2 \in [1.39, 1.65]$, and $z_3 \in [2.75, 3.19]$

C. $z_1 \in [-4.9, -2.9]$, $z_2 \in [-1.53, -1.44]$, and $z_3 \in [0.34, 0.48]$

D. $z_1 \in [-2.9, -1.4]$, $z_2 \in [0.64, 0.91]$, and $z_3 \in [2.75, 3.19]$

E. $z_1 \in [-4.9, -2.9]$, $z_2 \in [-0.55, -0.24]$, and $z_3 \in [4.43, 5.47]$

---

24. Perform the division below. Then, find the intervals that correspond to the quotient in the form $ax^2 + bx + c$ and remainder r.

$$\frac{4x^3 - 48x + 62}{x + 4}$$

A. $a \in [0, 12], b \in [-20.8, -19.5], c \in [50, 56]$, and $r \in [-204, -197]$.

B. $a \in [0, 12], b \in [-16.8, -15.2], c \in [13, 21]$, and $r \in [-5, 2]$.

C. $a \in [-18, -9], b \in [63.5, 64.5], c \in [-305, -296]$, and $r \in [1278, 1285]$.

D. $a \in [-18, -9], b \in [-64.7, -61.4], c \in [-305, -296]$, and $r \in [-1157, -1149]$.

E. $a \in [0, 12], b \in [15, 17], c \in [13, 21]$, and $r \in [121, 133]$.

---

25. Perform the division below. Then, find the intervals that correspond to the quotient in the form $ax^2 + bx + c$ and remainder r.

$$\frac{10x^3 - 83x^2 + 185x - 97}{x - 5}$$

A. $a \in [5, 18]$, $b \in [-47, -38]$, $c \in [13, 15]$, and $r \in [-50, -41]$.

B. $a \in [5, 18]$, $b \in [-39, -28]$, $c \in [20, 28]$, and $r \in [1, 4]$.

C. $a \in [49, 56]$, $b \in [163, 172]$, $c \in [1018, 1024]$, and $r \in [4997, 5007]$.

D. $a \in [5, 18]$, $b \in [-136, -132]$, $c \in [847, 853]$, and $r \in [-4349, -4342]$.

E. $a \in [49, 56]$, $b \in [-333, -331]$, $c \in [1850, 1852]$, and $r \in [-9348, -9342]$.

---

26. Perform the division below. Then, find the intervals that correspond to the quotient in the form $ax^2 + bx + c$ and remainder r.

$$\frac{8x^3 - 26x - 16}{x - 2}$$

A. $a \in [3, 12], b \in [15, 18], c \in [-2, 7]$, and $r \in [-5, -1]$.

B. $a \in [14, 18], b \in [-32, -28], c \in [33, 39]$, and $r \in [-94, -91]$.

C. $a \in [3, 12], b \in [-16, -14], c \in [-2, 7]$, and $r \in [-28, -22]$.

D. $a \in [14, 18], b \in [25, 38], c \in [33, 39]$, and $r \in [58, 66]$.

E. $a \in [3, 12], b \in [4, 12], c \in [-19, -15]$, and $r \in [-34, -33]$.

---

27. Factor the polynomial below completely, knowing that $x+3$ is a factor. Then, choose the intervals the zeros of the polynomial belong to, where $z_1 \leq z_2 \leq z_3 \leq z_4$. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 20x^4 - 7x^3 - 356x^2 - 515x - 150$$

A. $z_1 \in [-8, -4]$, $z_2 \in [0.78, 1.7], z_3 \in [2.36, 2.74]$, and $z_4 \in [3, 4]$

B. $z_1 \in [-3, 1]$, $z_2 \in [-1.93, -0.42], z_3 \in [-0.44, -0.28]$, and $z_4 \in [5, 11]$

C. $z_1 \in [-3, 1]$, $z_2 \in [-2.71, -2.11], z_3 \in [-0.87, -0.74]$, and $z_4 \in [5, 11]$

D. $z_1 \in [-8, -4]$, $z_2 \in [-0.41, 0.22], z_3 \in [2.8, 3.08]$, and $z_4 \in [5, 11]$

E. $z_1 \in [-8, -4]$, $z_2 \in [0.23, 0.55], z_3 \in [1.17, 1.32]$, and $z_4 \in [3, 4]$

---

28. Factor the polynomial below completely, knowing that $x+2$ is a factor. Then, choose the intervals the zeros of the polynomial belong to, where $z_1 \leq z_2 \leq z_3 \leq z_4$. *To make the problem easier, all zeros are between -5 and 5.*

$$f(x) = 6x^4 + 7x^3 - 44x^2 - 28x + 80$$

A. $z_1 \in [-2.92, -2.27]$, $z_2 \in [-2.01, -1.97], z_3 \in [1.29, 1.44]$, and $z_4 \in [0.97, 2.24]$

B. $z_1 \in [-4.34, -3.25]$, $z_2 \in [-2.01, -1.97], z_3 \in [0.81, 0.87]$, and $z_4 \in [0.97, 2.24]$

C. $z_1 \in [-2.23, -1.75]$, $z_2 \in [-1.36, -1.26], z_3 \in [1.96, 2.01]$, and $z_4 \in [2.2, 2.56]$

D. $z_1 \in [-2.23, -1.75]$, $z_2 \in [-0.64, -0.23], z_3 \in [0.71, 0.78]$, and $z_4 \in [0.97, 2.24]$

E. $z_1 \in [-2.23, -1.75]$, $z_2 \in [-0.98, -0.48]$, $z_3 \in [0.33, 0.41]$, and $z_4 \in [0.97, 2.24]$

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29. What are the *possible Integer* roots of the polynomial below?

$$f(x) = 6x^3 + 6x^2 + 6x + 5$$

A. $\pm 1, \pm 5$

B. All combinations of: $\dfrac{\pm 1, \pm 5}{\pm 1, \pm 2, \pm 3, \pm 6}$

C. All combinations of: $\dfrac{\pm 1, \pm 2, \pm 3, \pm 6}{\pm 1, \pm 5}$

D. $\pm 1, \pm 2, \pm 3, \pm 6$

E. There is no formula or theorem that tells us all possible Integer roots.

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30. Perform the division below. Then, find the intervals that correspond to the quotient in the form $ax^2 + bx + c$ and remainder r.

$$\frac{25x^3 + 80x^2 + 9x - 15}{x + 3}$$

A. $a \in [23, 28]$, $b \in [-20, -14]$, $c \in [89, 90]$, and $r \in [-372, -364]$.

B. $a \in [23, 28]$, $b \in [1, 11]$, $c \in [-6, 3]$, and $r \in [3, 6]$.

C. $a \in [-76, -72]$, $b \in [304, 309]$, $c \in [-908, -902]$, and $r \in [2702, 2704]$.

D. $a \in [-76, -72]$, $b \in [-149, -135]$, $c \in [-429, -423]$, and $r \in [-1293, -1287]$.

E. $a \in [23, 28]$, $b \in [154, 156]$, $c \in [465, 479]$, and $r \in [1401, 1410]$.
